From: A RUBIN [mailto:rubinhial@verizon.net]
Sent: Monday, October 27, 2008 2:25 PM
To: Zahradka,Neil
Cc: Wood,Christina; Neilan,Angela; Henry Staudinger
Subject: Fw: injection/Chaney

Please add this to the Panel record by posting on the Panel web site.

Thanks and Cheers

Alan

----- Original Message -----
From: Chaney, Rufus
To: A RUBIN
Cc: Henry Staudinger ; Greg Evanylo
Sent: Monday, October 27, 2008 1:46 PM
Subject: RE: injection/Chaney

Dear Alan and Henry:

I am responding to your request for a statement about why injection is the best management practice for biosolids.

I have described injection or other incorporation of land-applied biosolids as “best management practice” for many years. I based this recommendation on the substantial reduction in potential for ingestion of biosolids by grazing livestock and wildlife, reduction in malodor release, reduction in loss of ammonia-N, and reduction in potential runoff of pathogens, nutrients, trace elements and xenobiotics. Considering the setbacks required for biosolids applications, and low slopes, cover crops, etc., the probability of runoff contamination from applied biosolids is very low, so the other reductions are the most important basis for recommending injection or equivalent.

One should keep in mind that the potential for ingestion of biosolids applied xenobiotics is one of the legitimate reasons to recommend injection or equivalent. In the UK, they made a policy decision to require digestion and incorporation for all land-applied biosolids, which so significantly reduced the potential for dioxin or PCB transfer from applied biosolids to livestock that no increase in human diet dioxins was estimated from application of biosolids. And then they made no limit on dioxins or PCBs in biosolids. This is a simple logical outcome, but it was backed up by extensive modeling in the UK by the K.C. Jones group. Of course, this protection also applies to the high Fe levels in dewatered biosolids where Fe was used to reduce P in effluents; if no biosolids remain on the surface or on the pasture, livestock cannot consume the high Fe applied. Other trace elements are also kept at minimal exposures, and although no adverse effects were estimated for other elements in biosolids (except those which comprise risk from direct ingestion, such as F), the exposure is reduced compared to surface applied biosolids.

I have not pushed hard for an absolute incorporation requirement because with the setbacks, and a sufficiently remote location, and a long waiting period before livestock are allowed to graze the amended field, the potential for risk is extremely small. The largest potential problem with surface applied biosolids is the malodor and loss of ammonia, and the unsightlyness which causes viewers to have concern about exposures. Black fields and malodor cause concern regardless of the science, and it clearly allows loss of nutrients that is prevented by incorporation.

Maryland sorted out some incorporation methods which do not destroy all the cover needed to limit runoff erosion of biosolids and soil. But these methods are not fully applicable to pastures. Injection is more expensive, but clearly less offensive to the general public. And can be done with normal soils but not

clayey soils or too dry soils. It is a public decision whether the increase in cost and reduced land availability during part of the year is enough justification to allow continued surface application without incorporation.

Again, injection or other daily incorporation is the best management practice for biosolids. And for manure.

Regards,

Rufus Chaney
USDA-ARS-EMBUL
Beltsville, MD

From: A RUBIN [mailto:rubinhial@verizon.net]
Sent: Friday, October 24, 2008 8:39 AM
To: Chaney, Rufus
Cc: Henry Staudinger
Subject: Fw: injection/Chaney

Rufus:

Greetings. Henry Staudinger and I are two members of the Virginia Biosolids Expert Panel that have been urging the requirement of biosolids incorporation to significantly reduce pollurtant exposure and mobilization but more importantly significantly decrease odor and improve public acceptability.

The biosolids profession is strongly opposed to biosolids incorporation citing the loss of pastures as biosolids sites as well as a conflict with "no till" policy.

You had the courage to recommend biosolids injection/incorporation as a best management practice and we know that you have taken some heat on this. That being said:

Can you furnish us with a few paragraphs of your best arguments on why it is imporatant to require biosolids incorporation? Currently the Panel is discussing whether biosolids incorporation should be required for all situations where odor/pollutant sensitive individuals reside within one half mile of a biosolids land application site.

Please review Henry's statements below before you respond. As you can see, he has some questions on the feasibility of injecting/incorporating biosolids in pastures.

Many thanks and Cheers

Alan

----- Original Message -----
From: Henry Staudinger
To: 'A RUBIN'
Sent: Friday, October 24, 2008 6:36 AM
Subject: injection/Chaney

Alan

The only objection that has been raised to injection within a half mile of vulnerable individuals is that this would eliminate pastures and no-till sites from applications.

I am not an expert in this area, but based on an internet search, it would appear that injection can occur on both sites. If those articles are correct and we can provide documentation; this objection can be eliminated.

I believe that Rufus Chaney could answer that question for us. Are you in a position to reach Chaney? If so, would you ask him this question. If he confirms that injection is possible, would you ask him for supporting information that we could submit to the panel.

Henry